His latest work has been the preparation of changes in and amendments to the bills that have been drawn up for the protection of remains on the public domain. This work enabled Professor Hewett to handle the subject in a very comprehensible way.

The groups of ruins were described, the labor expended in each, and what should be done in the way of preserving them for future scientific work. The various bills for the preservation of ruins were explained, and the objectionable features of each pointed out. Reports of the commissioner of the general land office, and a monograph by the speaker were given to members of the section in order that a better comprehension of existing conditions might be obtained.

*The Election at Jemez Pueblo.* Albert B. Reagan. Read by title.

*Prehistoric Surgery: A Neolithic Survival.* George Grant MacCurdy.

This paper dealt with a certain type of neolithic surgery having certain points in common with trepanning, and which has been brought to light during the past decade. The type occurs in France over a limited area lying to the north of Paris between the Seine and the Oise. The cicatrice is usually in the shape of a T, the antero-posterior branch following the line of the sagittal suture; and the transverse branch, encountered in the region of the obelion, descending on either side to a point back of the parietal protuberances. In addition to the T-shaped lesion, one skull was marked by two oval perforations, one quite large, and two pits large enough to lodge the tip of the finger. The eight or nine specimens already described are all from prehistoric sepultures known as dolmens. In the opinion of Professor Manouvrier the lesions were produced by cauterization, an opinion which was recently confirmed by the discovery of quotations from ancient texts describing the treatment for melancholia, hypochondria, epilepsy, etc., as prescribed by the surgeons of the Dark Ages. The paper will appear in the *American Anthropologist.*

FRIDAY AFTERNOON, DECEMBER 30.

*Mexican and Central American Archeology.* Address of Vice-President Saville.

*The Bat-eared God of the Zapotecs.* H. N. Wardle.

The paper presented a résumé of the knowledge of this god from the pottery urns that have been found and from representations in the old codices.

Officers of Section H for the ensuing year:

*Vice-President*—George Grant MacCurdy.
*Secretary*—George H. Pepper.

George H. Pepper,
*Secretary.*

American Museum of Natural History.

---

*SECTION I, SOCIAL AND ECONOMIC SCIENCE.*

Section I is in some respects ideally constituted. It has a smaller body of experts in its membership who plan its programs and work out its policy. The larger number of members represent business experience and practical social effort. It thus combines in its programs the scientific discussion and methods of the expert with the results of well-considered experience in social and economic affairs. This year's program was well supplied with papers representing both phases of interest.

Two joint sessions were held, one with Section D for hearing a paper by Professor A. E. Outerbridge, Jr., on 'Specialization in Manufactures,' and one with the Society for the Promotion of Agricultural Science, to hear the memorial by Professor W. R. Lazenby on the life of the late Major H. E.

Alvord, of the U. S. Department of Agriculture.

The record of attendance of speakers on the published program was one of the best in the history of the section. Out of the twenty-three papers twenty were read in person by the authors. The attendance on the part of the public varied from thirty-five at the first session to seventy-five at the last session. Five different sessions were held, including one afternoon session devoted to the address of the retiring vice-president, Professor Simeon E. Baldwin, New Haven, Conn., on 'The Modern Droit D'Aubaine,' treating of the recent multiplication of succession tax laws, and their application to non-residents, resulting in double taxation.

The following officers were elected:

*Vice-President and Chairman.*—Professor Irving Fisher, Yale University.

*Council*—Marcus Benjamin.

*Sectional Committee*—E. L. Corthell.

*General Committee*—Henry Farquhar.

The papers presented included the following as reported in abstract:

SESSION ON ECONOMIC QUESTIONS.

*The Basis of Economics as an Exact Science.* Professor SIMON NEWCOMB, Washington, D. C.

One of the first things to strike us in the effort to apply scientific methods to economics is the absence of nomenclature. We notice, in the first place, that there is no name for the organized system of economic phenomena. Herbert Spencer has used the term 'social organism,' but the objection to that is that it includes more than is necessary. It embraces all phenomena which are social, but there are social phenomena which do not strictly belong to the economic order or which relate so indirectly to it as to be negligible factors in the consideration of economic questions.

Another phase of defective definition may be mentioned. I refer to the fact that there is no name for that portion of wealth which is not capital. Marshall makes use of the inconvenient term of 'wealth of the first order.'

Referring to the economic order as a whole, we notice, to begin with, that it is a unified system, in which the parts are related as means and ends. In economics these terms, means and ends, take the place of the correlated terms cause and effect in the physical order. That is, the relation of means and ends in economics corresponds to the relation of cause and effect in physics. In the economic order capital is means. The problem, then, is to find the relation of capital means to economic ends. We must study from ends to means and from means to ends according as the one or the other inquiry may be necessary to establish the causal relation which is the business of science to ascertain.

Now, as to the method of inquiry. In this procedure we have to distinguish between machinery which is necessary for production and auxiliary means to an end. The machinery necessary for production is, of course, capital in its essential character. The auxiliary means to ends which capital serves to reach is money. But money, important as it is in its auxiliary function, adds nothing to the power of the machine.

Knowledge or direction is needed as another auxiliary in the organization of the means to ends of production.

Socialism overlooks the necessity for the means of production, and seems to be based on the omission of this mediating factor between man's wants and his ends. The socialist is like the man who walks to the edge of a precipice and proposes to proceed even at the risk of losing his life rather than to build a bridge to pass from one precipice to another.

How far can economics be made an ex-

act science? It is often said that this subject depends too much on the vagaries of human nature to bring the economic processes within the category of exactness, This is true to some extent. We all know that the corn and the cotton crops, for instance, are uncertain quantities. We know that these affect economic activities to such an extent as to require constant readjustment. On the other hand, it is true that we know just about how a shortage in the corn crop or a marked enlargement in the cotton crop is going to affect the actions of persons interested. We know how the economic order in general, and how the divisions of enterprises directly affected are going to behave, other things being equal, under the changed conditions in the crop yield. It may, therefore, be said that there is a far greater degree of exactness attainable in measuring the force of economic processess than is usually assumed in the criticism based upon the assumptions of the vagaries of human nature.

We may, therefore, be exact in the investigation of the action of causes. For example, we can study with a remarkable degree of accuracy the influence of the increase of currency upon prices.

We may also make the comparative condition of the masses in different countries a subject of exact study. Take the five different nationalities of Russia, Austria, France, England and the United States. These are given in the order of the wage income, let us assume. The cost of subsistence is about the same in all of them, but wages are lower in the order given. Why is this the case? There must be some exact causes, and the problem is to determine what these laws are.

Another phase of the subject of method on the action of causes appears in the application of mathematical methods or principles to the study of economics. Jevons, for instance, applied mathematical methods to the determination of the law of marginal utility thirty or more years ago, and the principle has been extensively used and developed in numerous treatises since then. The law of supply and demand has likewise been treated mathematically by Marshall.

Returning again to the study of the condition of the masses, the main question is to find the causes of inequality of income. Methods hitherto pursued have generally lacked comprehensiveness. We may, however, assume that these inequalities are determined by the law of supply and demand and by a law of distribution growing out of the law of supply and demand.

One of the first things we notice is the great difference in apparently similar men. The captain of an Atlantic liner, for instance, who has millions of dollars of value intrusted to his care, together with thousands of lives, may in all outward respects and in mental qualities be apparently the equal of one whose judgment and practical capacity could in no wise be intrusted with so responsible a task as that of bringing a vessel across the Atlantic in safety.

The first problem which we may propose for ourselves in this field is that of the effect of supply and demand on the distribution of income. In books three and four of my 'Principles of Political Economy,' published twenty years ago, I sought to work out this problem in its twofold aspects: (1) From the standpoint of the productive process, and (2) from the standpoint of the societary circulation or the monetary movement. The chief difficulty in the solution of this problem lies in the numerous complications of the economic order as represented in changes and the multifarious causes at work. The problem may be simplified in statement by being represented in graphical form. We may, for instance, take the loaf of bread as a product and follow it back

through the chain of incipient factors, beginning with the farm on which the wheat is produced as the first step; second, Chicago as a wheat market; third, the baker; fourth, the house of the consumer. The productive process may be said to terminate, temporarily, at any rate, in the house, extending from the farm of the producer to the house of the consumer. On the contrary, the societary process, or the monetary flow, extends from the house of the consumer back through the baker and through the wheat market to the farm where production began. These two currents represent an exact quantity, in the one case of goods, and in the other case of money. They move in opposing directions, and in this respect are analogous to the two opposing currents acting simultaneously, as represented in electrical theory.

There are various other causal factors to be brought into the study of this relation, including such factors as the mechanic, who purchases from the hardware store, the hardware store purchasing from the tool factory, the tool shop purchasing from the rolling mill, and the rolling mill from the mine; but along each of those connections the two currents, productive and circulatory, are in active operation, and all of these factors are directly or indirectly connected with another factor—the government.

This representation may seem at first glance to be complicated by reason of the numerous currents represented in the two-fold process, the productive and the circulatory. Could the conclusions arrived at in this method be put in such a form as to have the community accept them? Economic conclusions are not easily accepted by the community in general. Why is this so? One reason—possibly the main reason—is that economists have failed to distinguish between means and ends. To the economist ends, rather than means, are important all the time. The economist, as a rule, has laid so much emphasis on means as to diffuse the sum total of impression made upon the mind of the community. Nevertheless, the individual member of the community and the community as a whole are interested in results, in ends, in income rather than in outlay, but the income in which they are interested is not the monetary income, but real income. I may illustrate this by supposing that in case of our civil war, the policy of the northern states toward the south had allowed exports to be made unhindered, but had prohibited all imports except gold and silver. What would the effect have been? The great majority of people would at first hand say that it would have enabled the confederate states to command the control of all utilities they desired, and thus worked exactly contrary to the blockading policy. But would that have been the case? We see that it would not, as soon as we realize that gold and silver are means and not ends. If the prohibition of imports of economic goods, except gold and silver, had been carried out, the productive process would have been interrupted and the starving-out policy have gone on substantially as it did under the blockade. This illustrates the relative importance of the productive process as distinguished from the monetary movement.

*Workings of the Anthracite Coal Strike Agreement.* WM. H. TAYLOR, St. Clair Coal Company, Scranton, Pa.

This strike was inaugurated May 12, 1902. Five months later President Roosevelt appointed the commission "to inquire into, consider and pass upon the questions in controversy in connection with the strike in the anthracite region, and the causes out of which the controversies arose. By the action you recommend, which the

parties in interest have in advance consented to abide by, you will endeavor to establish the relations between the employers and the wage workers in the anthracite field, on a just and permanent basis, and, as far as possible, to do away with any causes for the reoccurrences of such difficulties as those which you have been called upon to settle." Meanwhile the strikers returned to work. Five months later, March 18, 1903, the commission made its report to the president. The report says: "The occasion of the strike of 1902 was the demand of the United Mine Workers of America for an increase in wages, a decrease in time, and the payment for coal by weight wherever practicable; and where not, then paid by car. The cause lies deeper than the occasion, and is to be found in the desire for the recognition by the operators of the miners' union. The great strike of 1900 which resulted in an advance of ten per cent. in the wages paid to all classes of mine workers, did not leave either miners or operators in a satisfied state of mind, for both agree that since the settlement of 1900 there have been increased sensitiveness and irritation in the mining districts as compared with the previous twenty-five years or more."

Every coal mining company finds, as to the discipline, that there is generally a decided change for the worse; which, although it is known to exist, and is shown in many ways, is still difficult to define. Formerly employees seemed to be willing to turn their hand to anything that would further the work of the company, but nowadays if a man is asked to do a little outside of his regular line, he refuses to do it or does it grudgingly, telling the foreman that it is not his job.

The feeling of sensitiveness and irritation to which the commission referred, has not lessened, but, on the contrary, is a smouldering fire, which breaks forth at the least provocation. The effect of this unfavorable attitude on operations is reflected in the following typical results showing decreased efficiency generally.

One company reporting on all its collieries writes: "We find that the labor cost of producing coal during the period from November 1, 1903, to April 30, 1904, was 36.9 per cent. greater than during the same months in 1899 and 1900."

Two other collieries in the Lackawanna region furnish the following statement, showing decreasing efficiency:

TABLE OF COMPARATIVE EARNINGS AND OUTPUT.

| Average Items. | Colliery No. 1. | | Colliery No. 2. | |
|---|---|---|---|---|
| | 1901. | 1904. | 1901. | 1904. |
| No. of miners..... | 150 | 193 | 170 | 210 |
| Net earnings per miner, eleven months..... | $838.64 | $871.34 | $597.13 | $673.14 |
| Net earnings per miner, one month..... | 76.24 | 79.21 | 54.28 | 61.19 |
| Daily wages..... | 4.17 | 4.34 | 2.88 | 3.38 |
| Tons mined per miner per day.. | 9.44 | 7.46 | 7.29 | 6.22 |

In colliery No. 1, the earnings of 1901 taken as a basis, plus the 14.5 per cent. awarded by commission, should be $959.24; earnings per month, $87.50; per day, $4.77, showing a decrease in net efficiency, notwithstanding shorter hours and advanced wages, of 26½ per cent.

In colliery No. 2, earnings of 1901, plus 14.5 per cent., should give $683.71 as net earnings; earnings per month, $62.15; earnings per day, $3.30, showing net decrease of 16.9 per cent. in efficiency.

*The Present Status of Railroading in China.* CHUNG HUI WANG, Yale University Law School.

The present method of railroading in China constitutes one of the prime factors in the shaping of the future destiny of that country. While other countries are now lined with networks of railways, we find

that in China the 'iron road' has not yet become a household word. Foreign observers who have but a superficial view of the subject do not hesitate to attribute the cause of this to the superstition, ignorance, prejudice, and what not, of the Chinese people. In my opinion there are two fundamental causes back of this, the one financial and the other political. If we bear in mind that the construction of every mile of railroad costs upwards of $10,000, we can well imagine the financial difficulties with which we are confronted in the construction of a complete system of railroads. Moreover, the heavy indemnities and exactions which have been wrung from us by the foreign powers at different periods since the Opium War of 1841 up to the Boxer uprising of 1900 have almost exhausted our resources, and have consequently increased the difficulties of our problem. Again, railroading is more than a mere economic undertaking; it has political as well as strategic importance. The main objection which has been urged by the high officials against the adoption of railroads is that as long as China is not strong enough to defend herself against foreign aggressions, the presence of railways would be a constant menace to the safety of the country. If we read the Chinese state papers on the subject, we shall notice that the problem has been somewhat overestimated in its political and strategic importance, and underestimated in its economic and commercial aspects.

To Li Hung Chang is usually given the credit for the construction of the first permanent railway in China in connection with the Kiping coal mines, eighty-four miles northeast of Tientsin; but the credit is justly due to a subordinate official, Mr. Tong King Shing, the pioneer of the introduction of modern improvements into China.

After the Chino-Japanese War of 1896, the idea of constructing railroads exclusively with Chinese capital was abandoned as being impracticable, and in March of that year an Imperial Edict was issued encouraging the construction of railroads, and in October, an official of high rank, Sheng Sun Hawai, was appointed Director-General of Railroads with full power to raise foreign loans. This was the beginning of the period of 'concessions.'

Within the past few years 'railroad concessions' covering about 5,000 miles of railway lines have been granted to different syndicates, the largest of which is the Belgian. These 'concessions' provide that the ownership in the railways ultimately reverts to the Chinese government. Concessions are really contracts between the native company of Chinese railways and the foreign syndicates.

*Can the South Manufacture Her Own Cotton?* CHARLES LEE RAPER, University of North Carolina.

Slavery was a decided hindrance to the highest industrial development, just as the free negro and the free negro's ghost in politics are obstacles to present industrial progress.

The new south is not largely a product of outside energy and capital, but is a revival and continuation of the old life; she is a product of the ability of the southern white man working under new conditions. Though the new south is still far behind the north in wealth and industrial activity, the first twenty years of her life saw more remarkable progress than any other section of this extensive country.

General statistics are not all the evidence that goes to the support of the conviction that this section can become the world center of the manufacture of cotton goods. There is much in the general situation to which statistics can not give adequate expression. Climate, lack of damaging frost,

great water power and its freedom from ice, and the cheapness of housing, clothing and feeding the operatives, are all in favor of this view. The specific facts of cotton manufacture during the last twenty-four years show that in 1880 the southern states had less than 700,000 cotton spindles and about $20,000,000 invested in cotton factories. To-day they have about 8,000,000 spindles, or more than eleven times as many as in 1880. To-day they have almost $200,000,000 invested in factories, or ten times as much as they had twenty-four years ago.

The greatest need of the present is the direct sale of the products of the cotton mill to consuming markets. This is gradually being supplied, and with it the complete chain of economic production—the farmer, the manufacturer, the carrier and the merchant—will be primarily in control of the section of the country which is the source of the raw material.

SESSION ON EDUCATION AND SOCIAL SCIENCE.

*Ameliorative, Preventive and Constructive Social Work: and the Ideal Training for Social Workers.* Mrs. Anna Garlin Spencer, New York School of Philanthropy.

Social service and social work mean, first, a synthesis of that which is connated in the four basic institutions of society, the home, the school, the church and the state. Social service has in it something of the religious appeal to grow better and stronger, however difficult the growth may be. It has much of charity's special quality of devotion to those whose personal or social condition makes it most hard for them to live a truly human life. It has something of that dependence upon the organized whole of society which has given the modern state its functions of charity, education and public enlightenment through free public benefits. It has much of that spirit of moral reform which is forever blazing out in holy passion of rebuke against tyranny of the weak by the strong. It has, most of all, a giant share of that new impulse in education which demands for each child 'the best development society can afford.'

The supreme distinction of modern social service lies in its fundamental ideals and the conscious purpose in its application of those ideals. Those fundamentals are:

1. A belief in what Horace Mann called the 'infinite improvability of mankind,' a deep faith in the essential good quality of human nature, a faith shared with all new types of religious belief and the root of the new education.

2. A belief that the race is not improved solely or chiefly through its moral and intellectual elite (those capable of becoming saints and sages and leaders), but that the race is to be improved most completely and surely by the upraise of the whole mass of mankind. This is a faith in the spiritual essence of democracy.

3. A belief that here and now society has both the duty and the power to undertake consciously, determinedly, systematically and hopefully this upraise of the whole people, this demonstration in terms of absolute democracy of the worth of all human beings.

4. The belief that in order thus to grow nobler, purer and stronger and happier human beings in this wholesale fashion, society must also work to make a better world for the less fortunate and the weaker human beings now living.

5. The belief that since all the people, especially 'the least of these,' are to be lifted, society must hold itself responsible for the welfare, the safety, the chance to grow, the opportunity for education and the ability to become self-supporting, of every human being.

This then which we call social service is a synthetic appreciation and use of the

new ideals of education, democracy and religion.

This synthetic function divides itself into three main departments of social effort, namely: (1) Ameliorative work, (2) preventive work, (3) constructive work.

In all great social activities the three departments named work together and, therefore, the efficient organization of all charitable and reformatory forces is now indispensable to social advance. The modern warfare against disease is a perfect illustration of the interaction of ameliorative, preventive and constructive social work. At least one third of all the persons who require relief of a charitable nature do so because of illness or physical disability.

*Child Labor in Southern Mills.* A. J. MCKELWAY, Assistant Secretary of the National Child Labor Committee.

The southern cotton mill industry is centered in the Piedmont section of the four cotton states that have mountains, namely, North Carolina, South Carolina, Georgia and Alabama. These are the manufacturing states of the south.

This industry grew up in a night, and old historic communities, holding fast to their *laissez faire* doctrine, found themselves suddenly confronted with the problems for which they had no social experience and no legislative precedents. All of our industries are infant industries. In 1880 there were 667,000 spindles in the southern states. In 1900 there were 7,000,000. In 1900 there were 412 cotton manufacturing establishments. In January, 1904, there were 900, so that this statement of their number is antiquated as soon as it is made. The number has been more than doubled in the last four years. South Carolina stands next to Massachusetts in the number of spindles, and North Carolina is ahead of either in the number of cotton mills, the mills being smaller on the average than those of the other two states mentioned. Considering the shortness of the period of this revival of manufacturing, the south as a whole has acted with commendable promptness in recognizing and seeking to remedy the evils of child labor. The conditions of this industry in the southern states to-day are superior to those in either England or New England and probably superior to those that obtained when the industry was at its best in New England and the operatives were the hardy children of the New England soil. Despite the stories that have been published in the magazines at so much per column, it is a source of gratification to know that people are buying good clothes and good furniture and pictures and books and stoves. The homes of the people are three- and four-roomed cottages, an infinite distance from the one-roomed hut, and every cottage has an acre plat of ground, for the garden, while the pigs and the chickens and the cow have quarters of their own. And there is all of God's out-of-doors for breathing space. There is no night work at the mill, spinning and weaving departments being evenly balanced so that what is spun one day is woven the next. The hours are long, however, from 6 in the morning to 6:30 at night, with an intermission of forty minutes for dinner and a half holiday on Saturday. And this brings up the fact that there are too many young children in that force of a thousand workers and that eleven hours and fifty minutes a day is too long for any child to work in a mill, be the work ever so light.

*Work of the National Child Labor Committee.* SAMUEL MCCUNE LINDSAY, Secretary, New York City.

The permanent organization of the committee took place at the house of Robert W. de Forest, New York City, November 28,

1904, with a membership of forty-six persons, constituting, perhaps, as remarkable a group of varied industrial, financial, educational and social interests as was ever brought together in America or in any other country. Its membership now represents fourteen states and the District of Columbia. The object is to secure as nearly as practicable uniform legislation and uniform enforcement of laws on this subject throughout the union.

The work before the national committee comprises the education of public opinion, on the one hand, and the bringing to the attention of both the legislative and executive branches of the state and national governments the results of the careful and scientific study of both existing conditions and remedial measures. The national committee hopes to bring together the results of a larger parental responsibility, the better development of the public school system and the enactment of child labor legislation in the several states and territories, and to coordinate these efforts so that the evils of child labor may be eradicated from the industrial system of America.

*The Press as an Educator.* Wm. H. Lynch, Salem Public School, Salem, Mo.

Jules Verne, the world-famous novelist, wisely predicted that long before the middle of the century novels or romances, in volume form, would be supplanted by newspapers. The newspaper of to-day, great as it is, has yet before it a development and potentiality for usefulness scarcely imagined by its most far-seeing and progressive directors.

It must be obvious to all thoughtful persons that the newspaper may easily be made the medium of imparting valuable instruction in many departments of knowledge on which the very latest text-books are mere blanks. Take, for example, the experiments of Marconi in wireless telegraphy, so minutely recorded and illustrated in almost every newspaper. Would not the study of the despatches, describing the achievements of the great Italian, by boys and girls sufficiently advanced to understand them, be infinitely more profitable than the dull book pages they are compelled to read concerning the laying of the first ocean cables so many years ago? To this question there can be only one answer.

Take another current subject, with the discussion of which the newspapers have been filled in the most instructive and luminous way—that of Venezuela. What might not a competent teacher, with the aid of the press, have accomplished in the treatment of this question toward instilling in the minds of his pupils correct understanding and conception of the Monroe Doctrine, let us say, or a knowledge of the Spanish-American republics generally and our relations to them? Then there was a great coal strike and the war between Russia and Japan.

In the school books are a few meager facts and dates, forgotten almost as soon as they are learned, with respect to that basic factor in the industrial world. With the universal interest centered in the subject and the assistance of the newspaper, the skillful teacher could have done more to expand and inform the minds of all those intrusted to his care than all the text-book writers combined. Children should not, of course, be permitted to read everything printed, even in the newspapers. The latest advances in scientific knowledge, the newest inventions and discoveries, in every branch of human endeavor, are all heralded in the morning or evening despatches. Years hence the text-books will, as it were, embalm them in their solemn pages. Why should the child be compelled to sit in darkness with the light of knowledge blazing all around him?

*Ethnic Factors in Education.* Dr. EDGAR L. HEWITT, Washington, D. C. To be published in the *American Anthropologist.*

*The American Negro.* EDWARD L. BLACKSHEAR, Prairie View, Texas.

I. *Some Survivals of Primitive Racial Instincts in the American Negroes.*—The absence or, rather, scarcity of islands and peninsulas and bays and seas along most of the coast line of continental Africa has exerted indirectly a profound influence on African character. As a result, the African tribes have been isolated from all the great historical world movements, and have remained stationary in their social and tribal relations. Deprived of the stimulus of commercial and maritime influences, they have for centuries lain dormant in respect to the higher or organic life of the human species.

Herein lies the secret of the southern racial problem. The real crux of this difficulty is not the mere color of the skin, as is sometimes asserted. It is the sum total of characteristics, mental and moral, of which the exaggerated physique is the material expression and vehicle—it is this that constitutes a race problem when a group of Afro-Americans comes into any sort of relationship for a continued period with an Anglo-Saxon group.

II. *Negroism.*—By this term is meant to be conveyed an idea of a sum total of the characteristics—the mere color of the skin, while the most obvious, being really, as it is literally, superficial—which is the result of centuries of a heredity dominated by a fixity and sameness of environment as barren of differentiating and developing features as the Saharan Desert—a heredity wherein the mere struggle for animal existence and reproduction was the moving force, a heredity whose sameness of environment and want of contact, either friendly or hostile, with different human types, resulted in an exaggeration of qualities, physical, mental and moral. Add to the influences of this unvarying African environment and heredity all the influences of American chattel slavery which served to still further exaggerate tendencies already abnormally developed, and the resultant is what is here designated negroism. The significance of negroism lies in the defective attempt, grotesque to the cultured Anglo-Saxon mind, of the African mind to incorporate into its own thought and being, the real living thought and motives of the Anglo-Saxon race. And herein too lies the gist of the negro question.

The remedy for negroism is the development of Americanism, that is, of intelligent self-respect and a manly regard for others; of self-reliance as manifested in industry and economy and self-support; of a simple, pure, healthy, happy home life as opposed to polygamous indiscriminateness; a regard for peace and good government and good order rather than a scramble for place and power and spoils; a love of country, of home and a love of God manifested in a life of simple sincere piety rather than in manifestations of religious emotionalism unaccompanied or uninspired by the spirit of a genuine Christianity.

*On the Desirability of Founding an Institute for the Study of Blood Poisoning.* P. A. MAIGNON, Philadelphia.

In these days of immense activity great problems can be settled only by specialization. The prevention of disease is one of these problems. Medical science deals with the cure of disease; sanitary science with its prevention.

Medical and surgical science has been much endowed, but sanitary science has somewhat lagged. Sanitary plumbing and sanitary engineering are about all we hear of in connection with sanitary science.

The writer has for the last thirty years been associated with the sanitarians of London, the hygienists of Paris and in a general way with physicians taking particular interest in the prevention of disease, and it has occurred to him that a good purpose would be served if an institute were founded in this country for the special study of blood poisoning, particularly as regards the first step of infection. The physiological, chemical and physical composition of normal blood is pretty well known, but the immediate phenomena which obtain before the appearance of morbid symptoms do not seem to have been studied to any very considerable degree.

The main object of such an institute for the study of the different phases of blood poisoning, their cycle and variety, should be to find out and indicate the means to prevent the infection in each case.

*Sociological Features of the National Irrigation Movement.* Guy Elliott Mitchell, Secretary of the National Irrigation Association, Washington.

No question before the public to-day presents more interesting sociological phases than does the national irrigation question in America, not only through the great number of homes to be created by artificially watering desert wastes but through the far-reaching effect of the working out of a great government irrigation policy and the general education of the American people on the advantages of this practise both west and east.

The social side of irrigation can be described in the single clause—irrigation subdivides and resubdivides lands into small home tracts.

Irrigated communities average the smallest farms in the world. The most highly developed portion of the west contains thousands of five and ten-acre farms from which men are making comfortable livings. The social conditions of some of the most intensely irrigated tracts are perhaps the most nearly perfect of those of any communities in the world.

Now the effect of the great government irrigation work, which is being pushed rapidly forward, will be to create a western empire of new homes and at the same time, incidentally, thoroughly to educate the people of the entire country on the subject of irrigation. The consequence will be that irrigation practises will finally enthrall the eastern farmer. The facts as they exist in European countries show that irrigation can be practised with great profit even on land which has sufficient rainfall to grow paying crops. Irrigation is a crop insurer, besides producing double yields, and when it is applied to eastern farm lands the same conditions will result which are found in the arid region—the farms will be divided into smaller and better tilled tracts.

Along with the prosecution of the government irrigation policy and its great agricultural educational features will come the establishment of rural colonies throughout the entire country, home-acres for factory employees, making them to an extent independent of their daily wage, and the gradual trend of the city congestion back to the land as the primal source of all wealth. Working along with this policy of intensive farming and high cultivation is a recognized movement to engraft a practical agricultural education, nature study and handicraft work, upon our common school system so that men and women of coming generations will both want and strive to own a home on a piece of land and when they secure it will know how to make it productive and attractive.

STATISTICAL SESSION.

*Beef Prices.* Fred C. Croxton, U. S. Bureau of Labor.

An advance in fresh beef affects the expenditure of the working-man's family as much as would the same advance in the price of each of the four items, flour, corn meal, bread and milk. An advance in beef of two cents per pound means (if he buys the same grade and quantity), the expenditure of an additional amount equal to the cost of lighting, or to taxes and property insurance combined, or to the expenditure for books and newspapers.

The retail price of fresh beef at the present time is about ten per cent. above the average for the ten-year period from 1890 to 1899. The value per pound of the fresh beef exported also shows a decided advance. The average value for the last five years was 11.4 per cent. above the value for the preceding five years, and 13.3 per cent. above the value for the five years ending June 30, 1894.

A study of prices during the last fifteen years shows that with few exceptions the prices of beef cattle, of fresh beef at wholesale and of fresh beef at retail advance and decline together, but not to the same extent. The margin between beef at wholesale and at retail is usually rather close. While some parts of each carcass are retailed at two or three times the cost at wholesale, a considerable portion, if sold at all, must be sold for less than was paid at wholesale. In the early part of the present month, a 'top' carcass which cost the retailer seven cents per pound was sold in Washington as follows: 22 per cent. (including trimmings) at three cents or less per pound; 30 per cent. (including trimmings) at six cents or less per pound.

The demand for fresh beef at home has increased, owing to the increase in population, the greater proportion of persons living in cities and towns, and to improved industrial conditions during the past few years. The demand abroad, as shown by our exports for the five years ending June 30, 1904, was 21.7 per cent. greater than for the preceding five years, and 55.6 per cent. greater than for the five years ending June 30, 1894.

The most difficult question encountered in a study of beef prices is that of the supply. The estimates of the Bureau of Statistics of the Department of Agriculture show an increase from 1890 to 1904 of 15.6 per cent. in the number of cattle in the United States, while in the same time population increased about 30 per cent., and the exports of fresh beef increased 72.9 per cent. Deducting the amount of fresh beef exported from the amount sold by wholesale slaughtering and packing establishments, the number of pounds remaining per capita was 40.5 in 1890, 34.1 in 1900 and is estimated at 40 pounds in 1904. These figures do not of course represent consumption, but afford some measure of the relative amount of fresh beef sold in each year.

One of the most important factors in determining the beef supply is the corn crop. The price of corn makes more abrupt changes than does the price of cattle, yet the course of the prices of the two commodities is almost identical.

Above are considered what may be called the natural conditions in the beef industry. It is possible that combinations of packers exist, which would doubtless exert a steadying influence on declining prices; or a combination might be strong enough to control to some extent the prices of cattle bought for slaughtering, or the supply of beef shipped, which would seriously affect the price to the consumer.

*Movement of Wood Prices and their Influence on Forest Management.* B. E. FERNOW, formerly U. S. Division of Forestry.

Dr. Fernow refuted, by means of statistics presented in the form of diagrams,

the position of one of the noted English statisticians, Mulhall, that wood prices had fallen and would continue to fall, because the supply of timber was practically inexhaustible. The data upon which the English authority based this conclusion were shown to be worthless. The speaker pointed out the difficulties of securing useful data, from which to diagnose the past and predict the future of price movements, and explained that, and why, prices for lumber did not really represent prices for wood or stumpage. From careful compilations of the experiences of European forest administrations it was shown that wood prices had for fifty to seventy years increased at a compound rate of not less than 1.5 per cent. and for the last ten years at a rate of over 2 per cent., being now at least double what they were fifty years ago. Such data as were available for the United States showed the same tendency and about the same rate; and as the knowledge of the condition of timber supplies in the world was growing, wood prices would increase at an accelerated rate 'until that level has been reached which forces reduction of consumption.' The influence of the increase of wood prices on forest treatment was discussed at length, as tending to supplant the rough exploitation which alone appeared profitable at present, by forestry, *i. e.*, care for the reproduction of a new wood crop.

*The Present Demands and Economic Uses of Wood.* Wm. R. Lazenby, Ohio State University, Columbus, Ohio.

This paper will appear in full in the *Proceedings of the Ohio State Forestry Society.*

*The Wheat Situation in the United States.* John Cassel Williams, Washington Correspondent, New York *Journal of Commerce.*

Since the season of 1901 there has been a falling off in the production of wheat in this country, while the increase in consumption has gone steadily forward until the point has been reached at which, temporarily, at least, domestic consumption is about equal to the domestic supply and only a small surplus is available for exportation. The final figures of the Department of Agriculture for the wheat crop of 1904 issued by Chief Statistician Hyde put the total yield at 552,399,516 bushels, against 637,822,000 bushels in 1903, and 748,400,000 bushels in 1901. Though in some years there have been considerable quantities of wheat carried over from one season to another in the visible supplies and in the stocks estimated as remaining in the hands of farmers, the exports of wheat and wheat flour have, from year to year, afforded an approximate measure of the excess of production in the United States over the domestic demand.

Owing to the falling off in production and to the increase in domestic consumption, exports of wheat from the United States have temporarily, at least, practically ceased and exports of wheat flour have been greatly reduced in volume.

The American miller, endeavoring to retain his foreign market, is hampered, not only by the shortage of the domestic supply of wheat, but, also, by the inferior quality of a large proportion of that grown during the past season. The evidence submitted to the treasury department by millers who have asked for an allowance of drawback on the exportation of flour made wholly or in part from imported wheat shows that, while in former years an average of four bushels and twenty pounds of wheat have been required to make a barrel of flour, the average quantity of domestic wheat required this year is four bushels and fifty pounds. Complaint

is made that, even if domestic wheat is used to make flour for export, it is extremely difficult to make the quality necessary to keep up the reputation of the established American brands. Across the northern border in Canada there are ample supplies of wheat of good quality, if the American miller could draw upon that supply of his raw material.

The great body of the millers would welcome the absolute repeal of the duty on foreign wheat and there would doubtless be a vigorous demand for this repeal from other elements in the population of the United States if it were generally understood that, for some months past, the price of wheat in Canada has been from fifteen to twenty cents per bushel lower than in the United States, and that the effect of this has been to increase the cost of flour in the United States by from eighty-five cents to one dollar per barrel, thus increasing the cost of living to every customer of wheat flour in the United States.

What is to be the future relation of the domestic supply of wheat in the United States to the domestic demand? The operation of certain tendencies in American agriculture seem to indicate that wheat production in the United States can not be expected to increase in the future at a much greater rate than will be necessary to supply the increasing domestic demand. It is not impossible that the ultimate result of the operation of these tendencies will be to make the United States a permanent importer of wheat under normal conditions.

SESSION ON PROBLEMS OF COMMERCE, ETC.

*Present Status of Maritime Enterprise.*

WINTHROP L. MARVIN, Secretary of the United States Merchant Marine Commission, Boston, Mass.

While ocean shipping is in a distressed condition in Europe, it is in a desperate condition here. The Merchant Marine Commission has visited within eight months all of the chief ports of this country and it has not found anywhere so much as one new steamship designed for foreign trade in process of construction. It is, therefore, more than temporary depression which afflicts the ocean shipping of the United States. We are face to face, unless something heroic is speedily done, with the final vanishing of an old, historic industry. It will be generally agreed that President Roosevelt sent his urgent appeal to Congress none too soon. The report and recommendations of the Merchant Marine Commission will be laid before the Senate and House next week.* Though they can not be outlined beforehand, of one fact every member of the Congressional Commission is certain, and that is, that without vigorous national aid and encouragement of some kind we shall inevitably lose the last of our deep sea mercantile marine, not only the ships themselves, but the skilled officers and seamen.

The Merchant Marine Commission in its inquiry has found that all the maritime nations of the world protect and encourage their ocean shipping in some way or other. The most conspicuous instance of this practise is Great Britain's recent grant of $13,000,000 to build two new Cunard steamships, which will receive besides an annual subsidy of $1,100,000 for twenty years. Within sixty years Great Britain has expended about $300,000,000 in subsidies to her steam lines through all quarters of the world; and this, with the vigorous discrimination of Lloyds against foreign shipping, has made impregnable the British mastery of the sea, which was first gained by the navigation laws of Cromwell and the victories of Nelson.

* Senate Document, Report No. 2755, 58th Cong., 3d Sess., 70 pp. To be had upon application to Senator Gallinger.

The Merchant Marine Commission has given some attention to the free ship policy. In reply to inquiries addressed to the chief American owners of foreign-built steamships, these companies one and all declare that they would not bring their foreign ships under the American flag if they were given an opportunity, unless Congress by subsidy, bounty or discriminating duty enabled them to meet the higher wages of American officers and seamen. The Merchant Marine Commission, therefore, has been forced to turn to the alternative of direct national aid and encouragement to our merchant shipping. The exact conclusions which it has reached will be revealed when the report and recommendations are presented to Congress.

*Unconsidered Phases of Foreign Trade.* Harold Bolce, Washington, D. C. To be published elsewhere.

This paper was presented orally and dealt with the inadequacy of efforts on the part of the United States to secure a more favorable commercial position in the Far East, in South America and elsewhere, where the best efforts of rivals were making it more difficult each year for the United States to obtain a footing.

*Analogies Between the Evolution of International and of Private Law.* Edward Lindsay, Warren, Pa., Academy of Sciences.

As the ethics of a people are in advance of its laws so are the ethics of the individual always in advance of the ethics of the people as a whole. The individual is always in advance of the crowd, the group or the state. We would, therefore, expect to find the laws governing nations in their intercourse with each other in a less developed state than those governing individuals in their relations with each other. Such is in fact the case. A comparison of international law with the growth and progress of private law will afford information as to the stage and development international law has reached and something of what we may expect from its future growth. This comparison was made between:

1. *Treaties and Contracts.*—Treaties are contracts between nations. In international law in respect to treaties the binding force of the engagement is determined more from the formalities of the declaration of the treaty than from the agreement itself. In an earlier stage of private law this was also true of contracts; origin and history of contracts.

2. *War and Trial by Combat; War the Recognized Means of Settling a Dispute.*—In private law at a certain stage was employed the judicial combat which degenerated into the duel and has now become obsolete.

3. *Arbitration and an Action at Law; Arbitration a Rudimentary Judicial Process.*—In private law we have it to-day as a survival in some instances and there is much reason to think that it was a stage in the evolution of law courts and legal proceedings which was passed through by these institutions. International law may be expected to follow the same course of development in general as private law. International legislation, however, probably is inadvisable. Growth of international law best assured by international court to ascertain and declare the law in concrete cases.

*The Meaning of Maritime Expansion.* John Franklin Crowell, Washington, D. C.

The upshot of it all is that we as a people are in the tropics. Moreover, we are there in all probability to stay. Ten or fifteen years ago a professor of history sneered at the idea of the annexation of Cuba. But

the recent reciprocity treaty put the commercial relations between the two countries on a basis which makes economic annexation inevitable. Furthermore, every leading British possession in the West Indies has for some years been seeking reciprocal trade treaties with the United States, as a means of economic salvation. The fact is that the American tropics find their natural market for raw materials in the United States. We must find enlarged markets in these as yet undeveloped peoples. Step by step both the pressure from within and the course of events from without are drawing us out into relations with transoceanic countries which already make it necessary to look to the maintenance of communication with the different continents by sea.

At last then we are numbered among the great powers which have borne the burden of the world's colonization. We are there primarily because of the inequality in the degree of economic development, comparing tropical communities with our own. The relation of the more highly developed countries of the temperate zone to the comparatively undeveloped peoples of the tropics is one of the greatest of problems arising out of maritime expansion. The experience of most countries has resulted in one form or another of political dependence on the part of the natives; this political dependence with its varied institutions has its basis generally in an economic dependence or rather interdependence. Among these economic relations are invariably lines of communication and commerce by sea between the foreign country and the dependent territories. Great Britain requires control of the Mediterranean by reason of her relations with Egypt, India and Australia. One can not understand the history of modern peoples without taking into account this relation of the white races to the tropical peoples. With all of its dark pages, there are many proofs of the truth that the greed for gain has been subordinated to dictates of humanity, in dealing with these wards of the northern races. The missionary spirit has helped to temper the ferocity of mammon, and sooner or later insisted on the abolition of slavery throughout the entire region of conquest. There has been a moral expansion running parallel with the political and the economic expansion. Development of purchasing power rather than wasteful exploration of the population has come at last to govern tropical policy.

JOHN FRANKLIN CROWELL,
*Secretary.*

---

### *THE SAINT PETERSBURG CONFERENCE ON THE EXPLORATION OF THE ATMOSPHERE.*

AS some readers of SCIENCE may remember, the International Meteorological Congress which met at Paris in 1896 appointed a committee to further the exploration of the free air, then already in progress in Europe by means of balloons, and at Blue Hill in this country with kites. The committee bears the somewhat ambiguous name: 'International Committee for Scientific Aeronautics,' and has had for its president Professor Hergesell, director of the meteorological service of Alsace-Lorraine. Originally consisting of eight members, it now numbers about fifty, representing eleven European countries and the United States, for, although our national Weather Bureau has not had a representative on the committee, the writer attended the meetings that were held at Strassburg in 1898, at Paris in 1900 and at Berlin in 1902, and has endeavored to advance the objects of the committee in the United States.

The fourth meeting, appointed for last autumn at St. Petersburg, was regarded as of exceptional importance and, according-